



Illinois Department of Natural Resources

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Pat Quinn, Governor
Marc Miller, Director

March 24, 2011

Dr. Bert Jacobson, Dean
Environmental & Institutional Sustainability
Kankakee Community College
100 S. College Drive
Kankakee, IL 60901

RE: **KCC Main Campus Wind Turbine, City of Kankakee, Kankakee County**
Endangered Species Consultation Program
EcoCAT Review #1110292

Dear Dr. Jacobson:

The Department received this proposed action on the KCC Campus from Midwest Underground Technology, Inc., to initiate consultation in accordance with the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code Part 1075*.

The proposed action is the construction and operation of a single Endurance E-3120 wind turbine rated at 50 kW at the main campus of the College.

This letter states the biological opinions of the Department of Natural Resources pertaining to Natural Areas and those endangered or threatened species protected by the statutes, identified above, which require the College's consultation with the Department. The Attachment to this letter states the Department's opinions and recommendations pertaining to those species covered by the *Fish and Aquatic Life Code* [515 ILCS 5] and the *Illinois Wildlife Code* [520 ILCS 5].

Indiana Bat, *Myotis sodalis*. Kankakee County lies within the range of the endangered Indiana Bat. As demonstrated by fatalities of Indiana Bats at an Indiana wind farm in 2009 and 2010, this species is vulnerable to collision with wind turbines, especially during migration. The project footprint contains no known hibernation sites (mines or caves) for the Indiana Bat, a species listed as "endangered" by both the federal government and the State of Illinois, although potential summer roosting habitat for the Indiana Bat is present "in the vicinity" of the project.

The Department possesses no records of the capture of any Indiana Bats in Kankakee County in recent decades, but this should not be interpreted to mean this species is not present in the County. A summer colony of the Indiana Bat has been documented within the last ten years on the Kankakee River just east of the Indiana border, approximately 21 miles east of the KCC campus, while the Blackball Mine near LaSalle-Peru, 63 miles to the west, provides a winter

hibernation site and is designated by the Fish & Wildlife Service as “critical habitat” for this species. Based on past regional surveys, the Department believes it is unlikely that summer colonies of this species exist near the KCC campus, but the potential for summer colonies in the vicinity persists.

Many Indiana Bats migrate significant distances, up to 300 miles, to their summer habitats. But many travel lesser distances, and some spend the summers in the vicinity of their winter roosts. It is not known whether individual Indiana Bats consistently use the same summer colony areas and the same winter caves, or if they consistently follow specific migratory routes. Evidence for both behaviors remains equivocal. Data from telemetry experiments with this species suggest they do not migrate in a straight line, although the characteristics of weather and terrain which may influence movements are not well-understood.

Despite the conventional wisdom that bats are found in and near forested habitat, this does not hold true during migration, so that wind energy projects located in very open landscapes retain the potential to kill numbers of bats. Consequently, siting a wind energy facility in open agricultural areas does not obviate the need to monitor and assess the potential for bat mortality.

This particular wind turbine model exhibits distinctive differences from those turbines which typically comprise a commercial wind farm. This is a “downwind” as opposed to “upwind” design; it has a significantly higher rotation rate (42 rpm vs. 15-20 rpm); but it has a smaller rotor diameter (~20 meters vs. 100 meters) and a shorter total height (133 feet vs. 360-405 feet). Virtually all research on avian and chiropteran mortality at wind turbines has been conducted with the larger machines; the Department is unaware of any peer-reviewed research involving this particular make and model. It does bear some superficial resemblance to the notorious early machines at Altamont Pass, which resulted in significant bird mortality, especially of raptors.

The Department believes it is unwarranted to assume that a machine of this type has similar, but scaled-down, effects as larger commercial turbines. Its lower elevation and higher rate of rotation may render some species more, not less, vulnerable to collision.

Based on existing information, it is the biological opinion of the Department the proposed action is unlikely to adversely affect the Indiana Bat. Please see the Attachment for additional important information and further discussion about risks to non-listed bats.

Kankakee River Illinois Natural Areas Inventory (INAI) Site. The KCC Main Campus is bordered by the Kankakee River. The Department has designated the entire length of the Kankakee River in Illinois as an INAI Site, in large part because it provides essential habitat to a large number of State-listed endangered or threatened animals.

No fewer than eight State-listed species are present in the River reach adjacent to the campus. These include the **Northern Brook Lamprey**, the **River Redhorse**, the **Mudpuppy Salamander**, and five rare mussels: the **Salamander Mussel**, the **Sheepnose Mussel**, the **Spike Mussel**, the **Black Sandshell Mussel**, and the **Purple Wartyback Mussel**. Each of these species is aquatic, so the major vector for adverse effects is through the alteration of hydrology

or water quality. Standard erosion control measures required by the NPDES Construction Permit should be sufficient to avoid or minimize such effects.

Given the location of the proposed turbine and its ancillary equipment, it is the biological opinion of the Department the proposed action is unlikely to adversely modify the Kankakee River INAI Site or the essential habitats of State-listed species which it contains.

Ornate Box Turtle, *Terrapene ornata*. This State-listed threatened terrestrial reptile has been recently documented at Aroma Park, above the 100-year floodplain, only 2.3 miles southwest of the KCC Campus.

This small diurnal animal, which has a lengthy underground hibernation period from September to May, prefers easily-friable soils, generally has a small home territory of just a few acres, and typically spends much of its time in shallow burrows even during its active period. It may be adversely affected by the construction of wind turbines in its habitat, and perhaps by their operation—its vulnerability to factors like vibration, noise, and shadow-flicker has not been researched.

However, the landform geology at the KCC Campus differs considerably from that of Aroma Park, which lies on the opposite bank of the Kankakee River. Significant changes in soil morphology, even over a short distance, can greatly alter the probability that suitable habitat for this species exists in a given location.

On the basis of existing information, it is the biological opinion the proposed action is unlikely to adversely modify the essential habitat of the Ornate Box Turtle.

Gooseberry Island Nature Preserve and INAI Site. The 13-acre Gooseberry Island State Natural Area consists of a large island in the lower Iroquois River 2.7 miles southwest of the KCC Campus which has been dedicated as an Illinois Nature Preserve.

A standard commercial wind turbine might be visible from the Island at this distance, but the 133-foot height of this machine, coupled with the intervening topography and vegetation, virtually assures the proposed turbine will not be visible during the day and, because the turbine does not require FAA aviation safety lighting (despite its proximity to the Kankakee Airport), it will not be visible at night nor will Gooseberry Island receive any intermittent illumination reflected from a low cloud ceiling. No other environmental effects of the construction or operation of this turbine will extend across this distance.

It is the biological opinion of the Department the proposed action is unlikely to adversely modify the Gooseberry Island Nature Preserve and INAI Site.

Please review the Attachment for additional important information. Consultation on the part of the Department is terminated, unless the College desires additional information or advice related to this proposal.

This consultation is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations. Also, note that termination does not imply IDNR's authorization or endorsement of the proposed action.

Please contact me if you have questions regarding this review.

Sincerely,

A handwritten signature in black ink that reads "Keith M. Shank". The signature is fluid and cursive, with the first name "Keith" and last name "Shank" being more prominent than the middle initial "M".

Keith M. Shank
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cc: Jenny Skufca, Illinois Nature Preserves Commission
Sara Bielfeldt, Midwest Underground Technology, Inc.

Attachment

ATTACHMENT

Kankakee Community College Wind Turbine Kankakee, Kankakee County

Pursuant to the Department's authority to conserve and to protect the fauna and flora of Illinois, the following information is provided about possible impacts to non-listed species and important conservation resources that are or may be found in the area. In certain instances it also provides recommendations for consideration by the College.

Avian Wildlife. The construction of wind turbines has implications for a broad range of wildlife; it may result in increased mortality, fragmentation of essential habitats, and displacement of important life-cycle activities, such as feeding and nesting. To assess the effects of such facilities, it is imperative to establish a base-line of wildlife presence and activity within and near the proposed facility to which later conditions may be compared in order to discern how they may have been affected by the wind turbine or other human modifications of the area.

Recommendation #A1. The Department generally recommends pre- and post-construction assessments of avian usage within the project area. Where sufficient time is not available to conduct a pre-construction assessment, post-construction assessment can still identify impacts which may require additional steps to remain in compliance with applicable wildlife laws and regulations. The apparent absence of impacts is also important information, particularly for turbines which differ from the most common types studied. Such assessments may consist of both regular observations of avian behavior and mortality studies. Incidental discoveries of dead or injured animals and incidental observations of unusual species can provide important additional information about turbine impacts. Consideration should be given to periodic repetition of such studies during the life of the project to detect/monitor significant shifts in wildlife usage.

Bats. Although the Indiana Bat is currently the only federally-listed or state-listed bat believed to occur in or near Kankakee County, other bat species are abundant in the area. IDNR considers the cumulative risk to species, and the high bat mortality that can be found at some wind farms, coupled with the westward movement of White-Nose Syndrome, suggests increasing threats to bat species in Illinois.

In anticipation of the arrival of White Nose Syndrome (WNS), Wisconsin recently listed four additional species of bats, all of which are present in Kankakee County. Illinois is awaiting the results of additional investigations before considering what measures may be appropriate in response to WNS. The four species newly listed by Wisconsin are: **Northern Long-Eared Bat** (*Myotis septentrionalis*), **Little Brown Bat** (*Myotis lucifugus*), **Big Brown Bat** (*Eptesicus fuscus*), and the **Tricolor Bat** (*Perimyotis subflavus*), formerly known as the **Eastern Pipistrelle**.

The siting of this turbine adjacent to parking areas which may be well-lit after dark may create a heightened risk of bat mortality. The lights may attract significant numbers of insects which may, in turn, attract higher-than-normal numbers of feeding bats to the vicinity.

Recommendation #A2. The Department recommends KCC assess the effects of the turbine on bats through the implementation of post-construction mortality studies. Well-designed and implemented mortality searches can identify the bat species present and most at risk from a particular machine in a specific location. The Department expects each wind turbine to kill between 2 and 4 bats per year; higher numbers may be indicative of one or more issues contributing to elevated mortality.

Recommendation #A3. Operational curtailment is one method demonstrated to consistently and significantly reduce bat mortality at wind farms with minimal losses in power production. Curtailment consists of adjusting the operational “cut-in” wind speed at which wind turbines initiate rotation. If bat activity in the area is high, KCC may wish to consider implementing a curtailment policy to minimize bat mortality.

Recommendation #A4. In this case, if adjacent parking areas are lit at night it may be a factor increasing the level of bat activity near the turbine. If mortality appears elevated, KCC may experiment with reducing the numbers of hours the parking areas are lit and/or reducing or halting turbine operation during hours of peak bat activity, or combinations of these, to determine whether doing so reduces bat mortality. Should any now-common bat species become listed due to the inroads of White-Nose Syndrome, proven techniques for limiting mortality will be of great importance. Very little research information is available about the wildlife effects of turbines in this size-class.

Bald Eagle, *Haliaeetus leucocephalus*. Although de-listed by both the federal and Illinois governments, this species remains protected by two federal laws, the *Migratory Bird Treaty Act* and the *Bald and Golden Eagle Protection Act*. Illinois has been experiencing a strong population increase, suggesting that Eagles will be occupying much new territory. Large numbers of Bald Eagles are present along the upper Illinois River and they are becoming increasingly common on the lower Fox River. It would be unsurprising for Eagles to occupy habitat along the Kankakee and Iroquois Rivers during the useful life of this turbine.

Scientific research has established that, although wind turbine blades are visible to raptors at a distance, the combination of physics and biological capabilities renders turbine blades invisible to birds close enough to collide with them, regardless of lighting conditions or blade color/patterns, due to blade-tip speeds. Consequently, the Department does not recommend applying colors or patterns to turbine blades because, while doing so has not been shown to reduce bird mortality, the increased visibility from a distance may displace birds which are not at risk of collision from essential habitat nearby.

The Department is aware of a case in Ontario of a juvenile Bald Eagle colliding with a wind turbine, and of a second case in Wyoming. Juvenile birds, which may range as far as ten miles from the aerie, may be more vulnerable to collision, and it is also possible that construction of wind turbines may affect the selection of new nesting sites or the use of existing nests.

On February 8, 2011, the U. S. Department of the Interior published draft Eagle Conservation Guidelines for a public comment period lasting 90 days. KCC officials should become familiar with this and its successor document, since its terms may become relevant should the Bald Eagle

population expand into the vicinity of the KCC Campus. Among other provisions, the draft Guidelines state that should an Incidental Take Permit for a federally-listed endangered species (*e.g.*, bats) become appropriate in the future, such a permit cannot be obtained without first obtaining a similar permit for the Bald Eagle, if any are present in the area.

It is the biological opinion of the Department the project, at present, is not likely to jeopardize the Bald Eagle or to adversely affect its essential habitat. However, if avian studies indicate use of the project's airspace by Bald Eagles, the applicant should discuss the matter further with the U. S. Fish & Wildlife Service.